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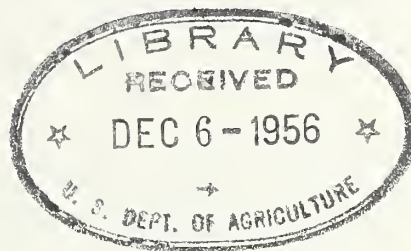
NEW MEXICO 15 RIO ARRIBA

POWER REQUIREMENTS STUDY

NORTHERN RIO ARRIBA ELECTRIC COOPERATIVE INC.,

CHAMA, NEW MEXICO

(REVISED)



ELECTRIC OPERATIONS AND LOANS DIVISION
RURAL ELECTRIFICATION ADMINISTRATION
UNITED STATES DEPARTMENT OF AGRICULTURE
Washington 25, D. C.

December 1955

NEW MEXICO 15 RIO ARriba

POWER REQUIREMENTS STUDY 1/

(Revised)

Foreword

This study has been prepared by the Rural Electrification Administration for use in determining the present and estimated future power requirements of the Northern Rio Arriba Electric Cooperative Inc., (New Mexico 15 Rio Arriba).

The estimates of future loads contained in the study have been arrived at from a field survey in the Cooperative's area and from basic data obtained in the Cooperative's office. The estimates of kwh consumption for residential type consumers used herein are based upon a projection of historical trends in consumption, type of farm, income, competitive sources of energy, and other economic factors which are believed to have a bearing on the future use of electricity in this area.

Estimates of kwh usage for other classes of consumers are based upon the growth trend to-date as indicated by the Cooperative's records, an analysis of the particular kind and type of consumer and for certain individual consumers, or classes, an evaluation of total connected load, maximum demand, diversity and load factor.

The estimates of average unit kilowatt demands per consumer at peak load, corresponding to the estimated average kilowatt-hour consumption per member per month of farm, nonfarm and small commercial consumers, have been derived from REA Bulletin 45-2 dated August 1951. The total number of consumers in a particular class, was used as a basis in arriving at the total unit demands in order to reflect the probable overall diversity between classes of consumers in a given substation area. No adjustment for a power factor less than unity was applied, it being assumed for estimating purposes that the KVA demand as read from the curve was equal to the KW demand at the substation.

1/ Based on a field survey conducted by Abner H. Beard, Field Representative, Electric Operations and Loans Division, REA, USDA.

NEW MEXICO 15 RIO ARRIBA

KWH ESTIMATES*

(REVISED)

<u>Class of Consumer</u>	Actual	<u>1958</u>	<u>1961</u>	<u>1966</u>
	12 Months <u>Ended August 1955</u>			
Farm	115	140	165	200
Nonfarm residential	79	100	115	145
Town residential	96	120	150	190
Seasonal (Annual)(6 mo.)	119	132	144	180
Small commercial	322	375	420	475
Public buildings	104	110	115	125
Street Lights (Annual)		18,200	20,750	25,000

<u>LARGE COMMERCIAL (ANNUAL)</u>	Estimated KW <u>Billing Demand</u>	<u>1958</u>	<u>1961</u>	<u>1966</u>
R. C. S. Lumber Co.	96	150,000	150,000	150,000
Marion Mead Lumber Co.	95	200,000	200,000	200,000
Chama Lumber Co.	210	400,000	400,000	400,000
U. S. Air Force (10 mo.)	204-214-266	950,000	1,000,000	1,250,000
Indian Agency	78-95-107	350,000	400,000	450,000
Dulce Public School (Pot)	38-45-56	50,000	60,000	75,000

* Revision of kwh estimates dated 10-18-54.
For details see Power Requirement Study
dated December 1955.

Certified

E. R. Brown
Head, Power Requirements Section
February 24, 1956

TABLE I

COMPARATIVE ANNUAL OPERATING DATA ON CONSUMERS AND AVERAGE MONTHLY CONSUMPTION

NEW MEXICO 15 RIO ARRIBA (REV.)

YEAR	FARM			TOWN			NONFARM RESIDENTIAL			SMALL COMMERCIAL			PUB. BLDGS.	
	MEMBERS	AVERAGE		MEMBERS	AVERAGE		MEMBERS	AVERAGE		MEMBERS	AVERAGE		MEMBERS	AV.
	NO.	KWH/MO.	% INCR.	NO.	KWH/MO.	% INCR.	NO.	KWH/MO.	% INCR.	NO.	KWH/MO.	% INCR.	NO.	KWH/MO.
1950	20	102		314	54					84	232			
1951	90	68	-33.3	375	62	14.8	54	54		124	229	-1.3		
1952	147	81	19.1	428	67	8.1	80	54		154	239	4.4		
1953	155	98	21.0	469	72	7.5	104	58	7.4	156	293	22.6		
1954	161	117	19.4	487	82	13.9	139	70	20.7	150	310	5.8	21	134
1955	169	115	-1.7	510	96	17.1	135	79	12.8	157	322	3.9	27	104
SUM OF YEARLY % INCR.														
(1950 - 1955)														
AVERAGE PER YEAR														
24.5														
4.9														
61.4														
12.3														
40.9														
13.6														
35.4														
7.1														

TABLE 1 (CONT'D)

COMPARATIVE ANNUAL OPERATING DATA ON CONSUMERS AND AVERAGE MONTHLY CONSUMPTION

NEW MEXICO 15 RIO ARRIBA (REV.)										
YEAR	SEASONAL CABINS		STREET LIGHTS		LARGE POWER		MEMBERS		TOTAL	
	MEMBERS NO.	AVG. KWH/MO.	MEMBERS NO.	AVG. KWH/MO.	MEMBERS NO.	AVG. KWH/MO.	MEMBERS NO.	AVG. KWH/MO.	MEMBERS NO.	AVG. KWH/MO.
1950							416		92	
1951			3	460	3	17,008	633		152	65.2
1952			3	667	3	13,832	816		154	1.3
1953			5	791	3	17,914	893		176	14.3
1954			5	800	4	16,760	967		197	11.9
1955	16	119	8	964	4	26,802	1026		242	22.8
SUM OF YEARLY % INCR.										
(1950 - 1955)										
AVERAGE PER YEAR										
										115.5
										23.1

ELECTRIC OPERATIONS & LOANS DIVISION, REA
DECEMBER 1955

TABLE II

COMPARATIVE ANNUAL OPERATING DATA ON ENERGY REQUIREMENTS

NEW MEXICO 15 ARriba (REV.)

YEAR	ENERGY PURCHASED		ENERGY SOLD		ENERGY LOSSES		MAXIMUM KW DEMAND	MO. OF MAX. DEMAND	LOAD FACTOR %	TOTAL SERVICES CONNECTED	TOTAL MILES ENERGIZED	OVERALL CONSUMER DENSITY	AVERAGE MILLS PER KWH
	KWH	% INCR.	KWH	% INCR.	KWH	% LOSS							
1950	637,049		459,684		177,365	27.8				448	40	11.20	100.95
1951	1,488,049	133.6	1,147,758	150.0	340,291	22.9	508	Nov.	33.4	763	231	3.30	30.64
1952	1,867,440	25.5	1,504,599	31.1	362,841	19.4	475	Nov.	44.9	842	243	3.47	18.36
1953	2,313,619	23.9	1,880,665	25.0	432,954	18.7	594	Nov.	44.5	903	249	3.63	18.16
1954	2,777,152	20.0	2,285,209	21.5	491,943	17.7	810	Oct.	39.1	995	262	3.80	16.89
1955*	3,093,537		2,557,751		535,786	17.3	870	Nov.	48.7	1082	276	3.92	9.96
SUM OF YEARLY % INCR.													
(1950 - 1955)		203.0			227.6								
AVERAGE PER YEAR		50.8			56.9	19.2							
* TEN MONTHS ONLY													

ELECTRIC OPERATIONS & LOANS DIVISION, REA
DECEMBER 1955

ESTIMATE OF LOADS -- CEBOLLA SUBSTATION AREA

NEW MEXICO 15 RIO ARRIBA (REV.)									
TYPE OF CONSUMER	NUMBER OF CONSUMERS			KW DEMAND			ANNUAL KWH REQUIREMENTS		
	1958	1961	1966	1958	1961	1966	1958	1961	1966
TOWN RESIDENTIAL	621	702	782	€0.490	€0.581	€0.688	€1440	€1800	€2280
FARM	202	226	250	€0.550	€0.624	€0.722	€1680	€1980	€2400
NONFARM (RESIDENTIAL)	157	179	198	€0.431	€0.475	€0.557	€1200	€1380	€1740
SMALL COMMERCIAL	177	190	205	€1.260	€1.398	€1.542	€4500	€5040	€5700
PUBLIC BUILDINGS	33	36	40	€0.460	€0.475	€0.498	€1320	€1380	€1500
SEASONAL CABINS (6 mos.)	25	32	40	€0.100	€0.108	€0.131	€132	€144	€180
STREET LIGHTS	8	8	8	€5/1.0	€6/1.0	€7/1.0	3,300	4,603	7,200
LARGE POWER:				**40	**48	**56	€18,200	€20,750	€25,000
RCS LUMBER CO.	1	1	1	€120/4.0	€120/4.0	€120/4.0	150,000	150,000	150,000
MARION MEAD LBR. CO.	1	1	1	€119/2.0	€119/2.0	€119/2.0	200,000	200,000	200,000
CHAMA LUMBER CO.	1	1	1	€280/2.5	€280/2.5	€280/2.5	400,000	400,000	400,000
U. S. AIR FORCE	1	1	1	€263/1.1	€276/1.1	€345/1.1	950,000	1,000,000	1,250,000
INDIAN AGENCY	1	1	1	€108/1.1	€125/1.1	€141/1.1	350,000	400,000	450,000
(POT)				98	114	128			
DULCE PUBLIC SCHOOL	1	1	1	€50/4.0	€60/4.0	€75/4.0	50,000	60,000	75,000
SUB-TOTALS							4,510,960	5,345,988	6,688,180
(ESTIMATED BASED ON METHOD PER STAFF INSTRUCTION 45 - 1)							€16.0%	€15.7%	€15.3%
PLUS DISTRIBUTION LOSSES							859,040	996,012	1,207,820
TOTAL	1229	1379	1529	1275/1312	1488/1547	1833/1886	5,370,000	6,342,000	7,896,000
* SUMMER ONLY -- ** WINTER ONLY				ANNUAL LOAD FACTOR			46.7%	46.8%	47.8%
*** ESTIMATED FOR WINTER PEAK.				ELECTRIC OPERATIONS & LOANS DIVISION, REA			-- DECEMBER 1955		

